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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,689	08/25/2003	Peter W. Richards	PI05-US	3780

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EXAMINER
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CHANG, KENT WU

ART UNIT	PAPER NUMBER
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2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/20/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/648,689

Applicant(s)

RICHARDS, PETER W.

Examiner

Kent Chang

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11,453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-96 is/are pending in the application.
- 4a) Of the above claim(s) 27-96 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16-26 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

4. Claims 1-14,16-26 are rejected under 35 U.S.C. 102(b) as being anticipated by **Doherty (6,201,521 B1)**.

As to claims 1 and 16, **Doherty ('521)** a spatial light modulator that comprises an array of pixels, wherein the pixels of each row of the array are divided into a plurality of subgroups, for producing an image, the method comprising (col.2, lines 31-35,col.4, lines 6-22):

receiving a set of pixel data streams (fig.1 (11), fig.2 (21)), wherein the pixel data of each stream represent a set of states of a pixel of the spatial light modulator during different time intervals (col.3, lines 54-60);

transforming the received pixel data streams into a set of bitplane data streams wherein the bitplane data of each stream represent the states of a plurality of pixels during one time interval, such that the bitplane data streams representing the pixels of the same subgroup are parallel and adjacent (col.2, lines 35-40).

updating the states of the pixels using the transformed bitplane data (see, col.2, lines 40-50).

As to claim 2, **Doherty** also teaches that the bitplane data representing adjacent pixels of the spatial light modulator are parallel but not adjacent (see, fig.4 "reset group").

In regard to claim 3, **Doherty** discloses that the bitplane data streams representing the odd numbered pixels of the spatial light modulator are parallel and adjacent (see, fig.4 "reset group" 1,3,5,..).

As to claim 4, **Doherty** also discloses the bitplane data streams representing the even numbered pixels of the spatial light modulator are parallel and adjacent (fig.4 "reset group" 0,2,4..).

As to claims 5 and 17, **Doherty** teaches does not teach that the state is selected from

an ON state and an OFF state, and in the ON state, the pixel of the spatial light modulator represents a "bright" pixel of the image, and in the OFF state, the pixel represents a "dark" pixel of the image (However, it is inherent for Doherty's pixel on the ON state to be bright and in the OFF state to be dark).

As to claims 6 and 18, Doherty discloses that the value of the pixel data determines the time duration of the pixel in the state (fig.4 "time").

In regard to claims 7 and 19, Doherty also discloses that the time intervals are determined according to a pulse-width-modulation technique (see. Col.1, lines 60- col.2, lines 2, col.2, lines 37-43).

As to claims 8 and 20, Doherty further discloses that the time intervals are determined according to a binary-weighted pulse-width-modulation technique (see, col.2, lines 35-40).

In regard to claims 9 and 21, Doherty disclose storing the transformed bitplane data streams in a frame buffer having a plurality of storage regions such that the bitplane data streams representing the pixels of the same subgroup are stored consecutively in the same region of the frame buffer (see, fig.1 (14), col.3, lines 66- col.4, lines 5).

In regard to claims 10 and 22, Doherty teaches that the storing the transformed

bitplane data streams in a frame buffer having a plurality of storage regions such that the bitplane data streams representing the pixels of separate subgroups are stored in different regions of the frame buffer (see, fig. 14), col.3, lines 66- col.4, lines 5).

As to claims 11 and 23, **Doherty** also teaches that upon receiving a writing signal, retrieving the bitplane data of the first significance from a first region of the frame buffer; and writing the pixels of the spatial light modulator with the retrieved bitplane data (col.4, lines 1-7).

In regard to claims 12 and 24 **Doherty** states the step of writing the pixels further comprises: activating the pixels using a first wordline (see, col.3, lines 66- col.4, lines 5, fig. 3 first wordline is "the first row").

As to claims 13 and 25 **Doherty** discloses retrieving the bitplane data of the second significance from a second region of the frame buffer; and writing the pixels of the spatial light modulator with the retrieved bitplane data (see, col.3, lines 66- col.4, lines 5).

As to claims 14 and 26 **Doherty** also discloses the step of writing the pixels further comprises: activating the pixels using a second wordline (fig. 3 "second wordline is the second row").

***Allowable Subject Matter***

5. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The cited prior art Doherty (6,201,521) has failed to teach applicant's claimed invention *"the pixel comprises a charge pump memory cell that further comprises: a transistor having a source, a gate, and a drain; a storage capacitor having a first plate and a second plate; and wherein the source of said transistor is connected to a bitline, the gate of said transistor is connected to a wordline, and wherein the drain of the transistor is connected to the first plate of said storage capacitor forming a storage node, and wherein the second plate of said storage capacitor is connected to a pump signal"*

***Response to Arguments***

1. Applicant's arguments filed 11/27/06 have been fully considered but they are not persuasive.

As to applicant's argument that Doherty does not teach "the pixels of the same subgroup are parallel and adjacent", note Doherty teaches, as shown in Figure 3, that the pixels in each of the groups 0 to 14 are parallel and adjacent. As known in the art, in a matrix display device, the rows are parallel to each other and the columns are also parallel to each other.

As to applicant's argument that Doherty does not teach "pixels of each row of the array are divided into a plurality of subgroups", note that the device of Doherty meets this limitation since all of the pixels (from row 0 to row 479, therefore meets the limitation of "pixels of each row of the array) of the array in the device

Art Unit: 2629

of Doherty are divided into a plurality of subgroups 0 to 14 (as shown in Figure 3). Applicant should note that the claimed subject matter, not the specification, is the measure of invention.

The remainder of the pertinent topics for argument are present in the appropriate rejections above.

### ***Conclusion***

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### **CONTACT INFORMATION**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kent Chang whose telephone number is 571-272-7667. The examiner can normally be reached on Monday to Thursday from 9:00 AM to 6:00 PM.



Art Unit: 2629

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz, can be reached at 571-272-3638.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

**571-273-8300**

Hand-delivered responses should be brought to the Customer Service Window, now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kent Chang  
Primary Examiner  
Art Unit 2629

kc  
2/13/07